The (St)Age of Participation:

Audience Involvement in Interactive Performances

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Abstract

In today’s Age of Participation, co-creation, user-generated content and social networking have become part of a mass-appeal digital lifestyle. This paper discusses potential implications for contemporary and future media art in the context of the stage. It reflects on why and how interactive performances could give consideration to this Zeitgeist of empowered spectatorship and, moreover, proposes principles for participatory stage pieces that incorporate practice-based experience as well as findings from (Social) Flow theory, a psychological framework for optimal creative experience that we found to be valuable for fostering audience engagement in interactive dramaturgies.

Key words: media art, interactive performance, audience participation, social flow
**Introduction**

“Today, the mass audience (the successor to the ‘public’) can be used as a creative, participating force. It is, instead, merely given packages of passive entertainment.” (McLuhan, 1967, 22)

The history of the theater reveals that dramatists down through the ages have taken advantage of the technical innovations of their respective times to transform artistic performances into emotional happenings that impart unforgettable sensations to audience members. Most recently in our own Digital Age, the technologies that have repeatedly made the greatest impact are those that have paved the way to a mass-appeal lifestyle of co-creation, user-generated content and social networking. In our present Age of Participation, as the Economist called it once (Kluth 2006), the passive recipient is free to morph into an active contributor, at least if he or she is lucky enough to live in a country without political or economic restrictions on access to the World Wide Web. Game researcher Jane McGonigal (2008, 2011) even speaks of an engagement economy in which it is becoming less relevant to compete just for an audience’s attention, but more and more important to harness their participation bandwidth and their individual contributions to a larger whole. She argues that, for users, the emotional payoffs of active participation are rooted in the natural human desire to join communities and contribute to something meaningful, something much larger than ourselves: the rescue of a whole virtual civilization in a video game, for example, or a piece of art.

How can the contemporary practice of stage-based media art, defined as multimedia plays that embed real-time interaction between professional performers and digital technology in a dramaturgical concept, give consideration to this Zeitgeist of content contributors and empowered spectatorship? And for what reasons should it be worthwhile to allow for the capacities of former viewers and listeners as a “creative, participative force”? As a starting point for discussion, we reflect upon these questions in this paper by building on theory reviews and initial practical experiences from *(St)Age of Participation*, an art-based research project on audience involvement in interactive performances. We propose design principles for participatory interactive performances that incorporate findings from Flow theory, a psychological framework for optimal experience that we found to be very useful to encourage audience engagement.
Performance in the Age of Participation

Audience participation in the performing arts goes back thousands of years to early tribal rituals and dances. In the 20th century, the Italian futurists around Filippo Tommaso Marinetti were the first to bring works to the stage that relied upon direct interaction with and reaction from the audience (e.g. through a deliberate double booking of theater seats as part of a remarkably provocative dramaturgical concept). It is said that the audience’s response—for example, throwing fruit at the stage—once elicited the comment “Throw an idea instead of potatoes, idiots!” from futurist Carlo Carrà (Smith & Dixon 2007, 559). In the 1930s, famous theater director Bertolt Brecht was already anticipating an internet culture far off in the future when he wrote about the interactive potential of radio that could let the listener speak as well as hear (Smith & Dixon 2007, 560). Several decades later, contemporary theorists of interactive art speak of floating works of art in which parts of the authorship transfer from the artist to the user, who at the same time “becomes conscious that he is an accomplice in a fundamental sense” even if “he is only one of many controllers” in a “web of influences that are continually reorganized by all participants” (Dinkla 2002, 38-39). As part of their conceptual framework of interactional trajectories, Benford and Giannachi look at interactive installations and performance pieces as new complex systems of roles in which artists and professional performers are increasingly encouraging the audience to perform in the work by taking on the role of an orchestrator (2011). As for the key roles, the authors describe the participant as a member of the public who is the main target of the artistic experience, and the spectator who witnesses the actions of participants, either intentionally in the role of an audience member or unintentionally as a bystander. Moreover, there are professional roles including actors who perform to members of the public, and operators or orchestrators who manage technologies and shape the artistic experience from behind the scenes (2009). Whereas in most traditional theater pieces, the actor on stage is perceived as a third-person “he” or “she” by the audience, the performer can become a second-person “you” when audience members are directly addressed and able to respond meaningfully (e.g. by means of technological interfaces in interactive artworks) (Smith & Dixon 2007).

However, Smith and Dixon also point out that most performance pieces still differ from interactive installations “in the ability of the user or audience to activate, affect, play with, input into,
build, or entirely change” (2007, 559) what transpires. By taking digital media art out of the stage context, interactivity and user participation have indeed been core elements since its very inception. Partly building on notions from computer games and extending the more politically motivated tradition of participatory art of the 1960s, the intention of computer-based media art to engage audience members in some form of interactive experience is often even necessary for the realization of the work itself (Edmonds 2010). Since the 1990s, there have repeatedly been interactive media art projects that have used the entire spectrum of audience activities to trigger medial reactions—from registering a person’s mere physical presence to complex tracking techniques. Nevertheless, such usages have taken place mostly within the frame of user installations in the context of exhibitions or, less often, public events such as Loren Carpenter’s massively multiplayer Pong game during a 1991 Siggraph show; actOpera by Klaus Obermaier and Robert Spour in 2000, an outdoor visualized concert in Linz, Austria, with 60,000 participants who could control various aspects of the music and visuals, and Golan Levin’s Dialtones (A Telesymphony), a large-scale concert performance whose sounds were wholly produced through the choreographed ringing of the audience’s own mobile phones and that premiered at the Ars Electronica Festival in 2001 (Levin 2001).

It is much more difficult to cite instances in which participative actions on the part of the audience have been embedded within elaborate dramaturgical concepts in a stage-based context that also involve professional performers. Several works of Stelarc could be mentioned here, who, for instance, allowed his body to be controlled by a remote audience in the course of his Ping Body performance in 1996. Also, some early pieces of the artist group Blast Theory fall in the mentioned category, e.g. Stampede, a promenade performance with pressure pads on the floor of the auditorium, where members of the audience could trigger audio and video samples (Blast Theory 2007). Klaus Obermaier and Robert Spour conducted a participatory concert with natural sounds produced by the Kronos Quartet. In this 1993 performance, titled The Cloned Sound, laser beams were utilized as interfaces for real-time sound control by the audience. In 2005, performance practitioners Steve Dixon, Paul Sermon, Andrea Zapp, and Mathias Fuchs played a drama called Unheimlich that enabled audience members on a green-box stage at Brown University, Rhode Island, to step into the virtual
narrative of two actors who were physically present at the University of Salford, Manchester, and take part in improvisation to visually merge with the actors on a screen.

Clearly, aside from aiming at a comprehensive dramaturgy that achieves a high level of narrative, aesthetic, emotional and intellectual quality throughout the entire performance, stage pieces also usually place much greater emphasis on the temporal parameter than interactive exhibits or media installations, most of which can be exited whenever the user chooses to do so. These aspects already address major artistic challenges that may emerge when audience members turn into co-creative performance partners. But given the experience of interactive media art, in which user-generated contributions often make for exciting results, and the performance piece’s advantage of simultaneously integrating a large number of persons present at the same time, experiments in audience participation should be of interest in the context of technology-enhanced stage pieces from several viewpoints. First of all, the previously mentioned spirit of our age confronts not least of all dramaturges and choreographers, performers and directors with a new reality in the lives of their audiences. People are motivated to get involved, to become an active part of a creative whole, give their input as fresh stimulus to professional performers, control the digital environment or decide on dramaturgical content—and they might even bring with them the instruments to do so by themselves. Never before have so many visitors carried mobile devices with such processing power and multi-functional application possibilities in their pockets. The fact that we don’t even have to explain the handling of most tools as long as we use common or intuitively understandable interaction metaphors increases the creative potential that today’s networked gadgets impart for integrating audience members as additional performance partners.

Second, the perceived level of liveness of interactive performances, the impression that the communicative interplay between human performers and digital environment, whether visual or sound-based, is happening in real-time, definitely increases when the audience members are able to comprehend the relation between trigger stimulus and effect by themselves (cf. Shneiderman & Plaisant 2004).

Third, the involvement of audience members as co-creators within the artistic frame of a stage performance can be one way to enable especially strong feelings of immersion, engagement and
enjoyment on the part of the audience itself. “Why participate in the first place? Why not just appreciate what others have made?” asks Rudolf Frieling (2008), curator of media arts at the San Francisco Museum of Modern Art, as a polemic starting point in an essay. One possible answer comes from renowned psychologist Mihaly Csikszentmihalyi who, in the mid-1970s, first introduced the concept of Flow, a fundamental theory about optimal human experience in the field of positive psychology. Flow represents a highly absorbing state in which people feel complete and energized; they focus on an activity or creative form of self-expression they perform. It’s also referred to as “being in the zone” (see, for example, Csikszentmihalyi 2008; Chen 2007; Walker 2010).

**Co-Creators in the Flow: Principles for Participatory Performances**

Following Csikszentmihalyi, being totally immersed in an activity that offers the right balance between its inherent challenge and the individual’s skills to meet this challenge generates more pleasurable feelings than being a couch potato relaxing in front of the TV set. At first, this statement may sound somewhat counter-intuitive, but research on the conditions of the Flow mental state provides much evidence for this. Interviewees over the last 40 years—among them many artists, musicians and athletes—report situations of complete engagement in a creative or insightful activity as the happiest moments of their lives. Flow is an autotelic, intrinsically rewarding state in which people are so deeply involved in the so-called here and now that they even tend to lose their sense of time, external pressure and the awareness of the self. Early research on such optimal experience mainly focused on it as a phenomenon that happens to individuals performing alone, not as part of a group.

However, more recent findings show that some of the most enjoyable Flow experiences occur during social interactions. Social Flow states were reported to be especially common in team sports or shared expressions of creativity such as music or dance (Walker 2010; Csikszentmihalyi & Rich 1997). Walker (2010) differentiates between three levels of social contexts that may inhibit, facilitate or transform Flow experiences, and that also could be taken into account in the conceptualization phase of a participatory performance piece:
- In situations of “mere presence”, individuals are engaged in an activity in the midst of others who are passive. This would be the case, for instance, when professional or amateur dancers perform in front of a non-contributing audience.

- In situations of “co-activity”, people perform side-by-side, but do not interact with each other, e.g. when many active audience members who are standing or sitting next to each other simultaneously communicate with an interactive digital system on stage.

- On the other hand, people cooperate and interact with other members of their present social group in situations of “interdependent interactivity” and might even coordinate their activities with each other in a team-like spirit. In highly interdependent situations, people may even serve as agents of Flow for each other. In the case of a participatory performance piece, this could happen when opportunities for interactive communication are available both among as well as within the groups of professional performers, audience contributors and the digital system.

In contrast to interactive user installations (e.g. in museums), stage pieces belong to a group of prototypical events such as concerts or sports happenings at which, by definition, a large number of persons are simultaneously present in a creative, immersive and thrilling experience and therefore provide a good frame for Social Flow states to occur. Csikszentmihalyi (2008, 76) states that art has always been one of the profoundest sources of enjoyment and Flow. Certainly, an immersive experience also can occur when we only view a painting or watch a dramatic performance (together). Perception itself is an active process and we know that we can deeply engage with an artwork even if we do not change it ourselves (Edmonds 2010). Marcel Duchamp (1957) even claimed that the recipient’s act of reflection is the final step in the artist’s creative process.

Nevertheless, the pleasure that active audience members could derive from expressing themselves creatively during an interactive performance and thus being part of a co-creative crowd consisting of professional stage performers as well as contributing spectators could be particularly conducive to Social Flow states (also see the “pleasure framework” by Costello 2007).
In the following section, we propose principles that may facilitate audience engagement and co-creative enjoyment in the context of participatory interactive performances. To accomplish this, we adapted the main characteristics of optimal Flow experience to the context of interactive dramaturgy and also gave consideration to practice-based experiences derived from our art-based research project *(St)Age of Participation* that is situated precisely at the nexus of media art, on-stage dramatic expression and creative real-time audience participation:

- **Free choice to participate**: One important precondition for mental Flow states is an individual’s free choice to engage in an activity (Walker 2010). Relating this aspect to participatory performances, it is clear that pressure should never be put on anyone to contribute or co-create during a performance piece. “Participatory art is an open invitation” (Frieling 2008, 13). Socially embarrassing or confusing situations can arise if individuals are forced to participate. Since this should never happen, it always has to be perfectly acceptable that some audience members want to completely or partially remain non-participant observers. It’s well-known from the online sphere that there is a substantial subset of people who prefer to be “lurkers”—watching others perform and participate—than to become visible as active contributors themselves.

- **Clear goals and control**: If active audience members understand what is asked of them, what they can do and how they can interact with the digital performance environment or communicate with the professional performers, they feel secure and in control, which, in turn, makes conveyance into their personal Flow zones more likely. At least in the “here and now” that people experience, the rules should be clear. This calls for adequate preliminary information (also see Bilda, Edmonds & Candy, 2008), as well as appropriate interfaces and interaction metaphors that are intuitively and quickly understandable.

- **Immediate and direct feedback**: The inability to grasp the connection between technical cause and audiovisual effect during a co-creative act automatically diminishes the audience’s level of excitement, involvement and Flow. Direct feedback should enable a good understanding of cause-and-effect relationships on the interactive stage; success has to be perceived immediately. If an upstretched arm triggers a higher tone in the sound environment than an arm that is
stretched downward, this logic should be maintained throughout the performance and not be reversed suddenly (also see Shneiderman & Plaisant 2004).

- **Balance of challenge and skills**: If you don’t come out of a performance challenged, potentially changed, with a feeling that you were taken further, you have been cheated in the opinion of Geoff Moore (1993), who founded the experimental British dance group Moving Being in 1968. In order to foster an individual’s optimal Flow experience, the inherent challenge of an activity and the participant’s ability to address and overcome it (Chen 2007) should be in harmony. When such balance between challenge and capabilities is not attained, non-Flow emotions such as anxiety (challenge higher than skills) and boredom (skills higher than challenge) might be experienced by audience members (Walker 2010). Here, we face one major difficulty in designing social participatory experiences: audience members usually have diverse skills and varying levels of experience with interactive technologies. To address this issue, we either have to provide some dynamic interaction pattern that allows adaption to different users’ Flow zones or at least try to provide variable types of participatory interaction that address different levels of ability.

- **Phases for pause and learning**: Switching back and forth between more active and more passive phases in a participatory performance piece can be an effective means to create some “mental space” for internalization and learning on the part of audience members (Bilda, Edmonds & Candy 2008). This also might support a dynamic interactive dramaturgy: sometimes the professional performers take center stage, sometimes the focus is on the digital technology, sometimes on audience-generated content—and sometimes it all gets mixed up into one creative whole.

- **Creative expression within a defined artistic frame**: Providing opportunities for audience members to co-configure the performance environment or opening up space for creative self-expression through interactive tools already constitutes a good basis for transporting people into a state of Flow. For every creative activity, we get to make meaningful decisions, we feel proud of something we have made and more capable than when we started (McGonigal 2011). But certainly, audience participation in the course of an interactive performance piece can never
occur completely independently from a defined dramaturgical frame. As Benford and Giannachi point out, “the very nature of interaction means that participant trajectories may diverge from pre-planned canonical trajectories as participants make individual choices” (2012, 42). This calls for processes of orchestration and a dynamic artistic concept within the boundaries of which audience members can contribute and get the feeling of involvement and creativity.

Csikszentmihalyi (2008, 72) states that experiences “as distinct as possible from the so-called ‘paramount reality’ of everyday existence” are especially likely to generate Flow states; accordingly, it is incumbent upon artists and developers who conceptualize participatory media art plays to create shared realities that are aesthetically, emotionally and intellectually outstanding and go beyond the borders of ordinary experience.

**Letterbox: A Micro-Performance on the Stage of Participation**

*Your personal highlight of Letterbox?*

- “That you have a shared virtual space in which you can leave behind messages.” (Audience member Martin)
- “That the dancers further process the input from the audience. Actually, I’ve never experienced this kind of thing before.” (Audience member Thomas)
- “That you can design what happens with the stage set yourself.” (Audience member Melanie)
- “That, at the end, you can try it out yourself with the letters. That was a lot of fun.” (Audience member Sonja)

As a three-year artistic research project, *(St)Age of Participation* aims to develop and evaluate several participatory, short “micro-performances” involving real audiences in an experimental interactive space in the presence of professional performers, a director, a dramaturgical concept and a stage. Therefore, the conceptualization of our first micro-performance entitled *Letterbox* was based on the following elements: the aesthetic and dramaturgical vision of the artistic director; the integration of new interactive technologies, and the effective usage of devices that audience members brought with them; and the previously mentioned principles of Flow through which we tried to intensify the degree of engagement and social experience.
In Letterbox, audience members co-create the visual performance environment by sending text messages that appear in real-time on the 16x9 meters large screen and then get transformed by an anagram algorithm (part 1). Afterwards, two professional dancers interact through a Kinect body-tracking system with the audience-generated character clouds (part 2).

In summer 2012, three audience evaluations of the experimental dance performance Letterbox were conducted as first actual test runs of the (St)Age of Participation project (see www.stageofparticipation.org for a video summary of Letterbox). The team—consisting of director and composer Klaus Obermaier, software and HCI designers, as well as a media psychologist from the Ars Electronica Futurelab—first created the participatory and interactive dramaturgy concept that then served as the starting point for the development of suitable technological interfaces for two professional dancers and about 50 audience members. The dramaturgical implementation of social networking components and the design of an on-stage narrative that equally incorporated professional dance and sound, interactive technology, and audience-generated content that, moreover, did not quickly exhaust itself in terms of aesthetic or intellectual quality were crucial issues. Letterbox took place in Ars Electronica’s Deep Space, a room with 16x9-meter images displayed on wall and floor via eight 1080p HD and active stereo-capable Barco Galaxy NH12 projectors. The piece enabled audience participation, first by means of a specially developed Smartphone app that allowed for real-time control of the visual and sound environment and, second, by allowing audience members to assume the dancers’ roles and interact with the audience-generated text environment through a Kinect-based tracking system.
Fig. 2: In Letterbox, part 3, the audience controls the sound environment by using a character keyboard app that automatically was activated on their smartphones. After a dance finale in part 4, the interactive stage environment is opened for audience members to step into the role of the dancers and try themselves.

The dynamic Letterbox dramaturgy consisted of the following phases (also see Figure 3): In Part 1, which focused on pure audience participation, the visitors could spontaneously send text messages with a length of up to 40 characters in real-time to the 16x9-meter screen environment. After reading a preliminary instruction sheet and registering for the automatic activation of the Letterbox app on their phones, most audience members had a clear understanding of what they could do at this moment (clear goals and control). By the time they watched other visitors starting to create their personal text environment at the very latest, they comprehended the goals. Immediately after sending, the original text messages of audience members were displayed for a duration of 5 seconds on the screen (immediate and direct feedback) and then transformed by an anagram algorithm. It was interesting to observe that after only a short time, audience members started to use this interactive environment as a personal communication channel, addressing and responding to other attendees (creative expression within a defined artistic frame) and thereby generating a social situation with “interdependent interactivity” (Walker 2010). In Part 2 of the performance piece, two professional dance performers appeared on stage, and were then full-body tracked by two Kinect cameras, which transformed the audience-generated text environment via their movements. This non-participatory phase enabled the audience members to pause and learn about the interaction functionality of the Kinect-based system. In Part 3, the two professional dancers were still on stage, but the audience members again had the chance to interact through the Letterbox smartphone app, this time by controlling and co-creating the sound environment through an easily understandable “character keyboard.” In this part, the dancers even demonstrated the operation of the app live on stage by using their personal smartphones. The audience members immediately understood that it was their turn again (clear goals and control). By
clicking a letter on the screen-based “character keyboard”, corresponding sounds and visuals were triggered in real-time (immediate and direct feedback). A non-participatory dance finale followed in Part 4. Then, in Part 5, audience members got the opportunity to personally try out the body-tracking system whose mode of operation had already been established by the professional performers. Based on their personal levels of technical understanding, dance skills or motivation, audience members could use the system’s capabilities to greater or lesser capacity (balance of challenge and skills). Throughout the whole piece and especially during the closing part that enabled audience members to slip into the role of the dancers, decisions to participate always took place as free choices.

![Dramaturgical Curve of Participation](image)

Fig. 3: The dramaturgical curve of participation for the micro-performance Letterbox shows which of the participation principles we introduced was applied when in the timeline of the piece.

**Conclusion and outlook**

In this paper, we introduced the concept of optimal experience, often referred to as Flow, to the digital performance community. We focused on its potential implications for participatory media art in the context of stage performances. Several test runs of our experimental micro-performance Letterbox suggest that an incorporation of the proposed principles in the conceptualization phase of participatory performances is of value for creative audience engagement and the promotion of social Flow.
Building on this, the next steps of the (St)Age of Participation art-based research project will include the development and evaluation of more micro-performance experiments, thereby further deepening the Flow-based approach to audience involvement in interactive performances.

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